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ABSTRACT

Two experiments examined the effects of evaluation expectation and the presence of others on creativity in undergraduate students. In both, some Ss expected that their work would be evaluated by experts, while others expected no evaluation. Evaluation expectation was crossed, in each experiment, with the presence of others. In the first experiment, this variable was operationalized as coaction; some subjects worked individually in small groups, while others worked alone. In the second experiment, it was operationalized as surveillance; some subjects believed they were being watched while working. Effects of evaluation expectation were consistently strong. On both the verbal task used in Study 1 and the artistic task used in Study 2, creativity was lower in those groups expecting evaluation. Evidence on the social facilitation or social inhibition of creativity was less clear. Coaction had no effect, and surveillance had only a weak negative effect. Moreover, there was no clear evidence that the effect of surveillance was due to evaluation apprehension. The results are discussed in terms of motivational and cognitive influences on creativity. Three pages of references are included. (Author)

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# Social Influences on Creativity: Evaluation, Coaction, and Surveillance

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## Abstract

Two experiments examined the effects of evaluation expectation and the presence of others on creativity. In both, some subjects expected that their work would be evaluated by experts, while others expected no evaluation. Evaluation expectation was crossed, in each experiment, with the presence of others. In the first experiment, this variable was operationalized as coaction; some subjects worked individually in small groups, while others worked alone. In the second experiment, it was operationalized as surveillance; some subjects believed they were being watched while working. Effects of evaluation expectation were consistently strong. On both the verbal task used in Study 1 and the artistic task used in Study 2, creativity was lower in those groups expecting evaluation. Evidence on the social facilitation or social inhibition of creativity was less clear. Coaction had no effect, and surveillance had only a weak negative effect. Moreover, there was no clear evidence that the effect of surveillance was due to evaluation apprehension. The results are discussed in terms of motivational and cognitive influences on creativity.

# Social Influences on Creativity: Evaluation, Coaction, and Surveillance

The traditional image of the strikingly creative person working as an isolate, protected from social influences, may actually have some validity. In a letter to a friend, Mozart described his ideal working conditions: "When I am, as it were, completely myself, entirely alone, and of good cheer -- say, travelling in a carriage, or walking after a good meal, or during the night when I cannot sleep; it is on such occasions that my ideas flow best and most abundantly" (Holmes, 1878, p. 211). The phenomenology described by Mozart and by some other creative individuals (e.g., Spender, 1949; Tchaikovsky, 1878) suggests that the presence of others can be detrimental to the creative process.

Research into the effects that the presence of others can have on performance -- generally termed "social facilitation" research, whether the effects are facilitative or inhibitory -- began with what may be the first social psychological experiment ever performed. Triplett (1898) offerred "dynamogenesis" as an explanation for his observation that bicyclists performed better when other cyclists were riding alongside. According to this explanation, the presence of other cyclists arouses a "competitive instinct" that spurs the performer on to greater effort. In Triplett's experiment, children who wound fishing reels in competition with others worked faster than those asked to do the task alone. Allport's later research (1924) demonstrated that simple tasks were performed better with coactors (others working individually alongside the performer), but complex tasks were performed better alone. This difference held for all



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subjects, except those who were highly proficient at the complex task. (For those subjects, of course, the "complex task" may be viewed as a simple one.) Several other studies have replicated the finding that others, serving as coactors or as an audience, facilitate performance on easy tasks but inhibit performance on difficult tasks (e.g., Dashiell, 1930; Husband, 1931; Pessin, 1933; Travis, 1925).

Zajonc (1965) proposed a drive theory of social facilitation to explain both the facilitative and the inhibiting effects of the presence of others. According to Zajonc, the mere presence of others, either as coactors or as passive observers, produces an increase in general arousal. This arousal increases the probability of dominant responses and decreases the probability of subordinate responses. Thus, if a dominant response is the correct response on a task, performance should be enhanced by the presence of others. If, however, the dominant response is incorrect, performance should be undermined.

Cottrell (1968) proposed that evaluation apprehension, and not mere presence, is the immediate antecedent of the increase in drive produced by the presence of others. Some studies have supported this proposition. For example, in one, subjects who worked in the presence of potentially evaluative observers emitted more dominant responses than those who worked alone. By contrast, subjects who performed in the presence of others who could not evaluate them (because they were blindfolded) performed just as those working alone (Cottrell, Wack, Sekerak, & Rittle, 1968). This was not a particularly strong test of the evaluation hypothesis, though, since it is unclear whether blindfolded individuals should be considered an "audience" at all.



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Moreover, other research contradicts the hypothesis. Some studies have shown social facilitation effects with nonhuman species, such as cockroaches, where evaluation apprehension is quite unlikely (Zajonc, Heingarner, & Herman, 1969). And dominant responses can be facilitated by the presence of others even when those responses are expressions of preference that cannot be construed as correct or incorrect (Zajonc, Wolosin, Wolosin, & Loh, 1970).

There is some intriguing evidence, though, that evaluation expectation can add to the effects of the more generalized arousal that might occur even in the presence of a nonevaluative audience. Henchy and Glass (1968) compared the performance of subjects who worked alone with the performance of subjects in three other conditions: those who worked before an expert (evaluative) audience, those who worked before a nonexpert (nonevaluative) audience, and those who worked alone but expected subsequent expert evaluation. The results suggested that the mere presence of even a nonevaluative audience did increase the emission of dominant responses (over the level of the "alone" condition), but that adding the expectation of expert evaluation by the audience increased the frequency of dominant responses even further. Moreover, the actual presence of experts led to a higher rate of dominant responses than the simple expectation of future expert evaluation.

Thus, it appears that the mere presence of others, either as coactors or as observers, can impair performance on poorly learned or complex tasks, but enhance performance on well-learned or simple tasks. Most of the evidence also suggests, however, that in humans the expectation of evaluation can augment these social facilitation effects (cf. Geen & Gange, 1977).

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Creativity is usually defined as the production of something that is both novel and useful. In addition, it may be important in defining creativity to specify the nature of the task. Tasks that are algorithmic -- with a clear, straightforward path to solution -- do not allow creative performance. Creativity can only be displayed on tasks that allow room for flexibility in response -- heuristic tasks, where the path to solution is not straightforward and, hence, some exploration is required. Thus, a definition of creativity should include three elements: "A product or response [is] creative to the extent that (a) it is both a novel and appropriate, useful, correct or valuable response to the task at hand, and (b) the task is heuristic rather than algorithmic" (Amabile, 1983, p. 33). By definition, then, creativity tasks are complex tasks and, according to social facilitation theory, should be negatively influenced by the presence of others. Moreover, if a task has both algorithmic and heuristic aspects, the heuristic aspects of performance should be undermined by the presence of others. Performance on algorithmic aspects might actually be enhanced.

Creativity theory, too, proposes that the presence of others may inhibit creativity. The componential model of creativity (Amabile, in press) outlines three components that are essential for creative performance: (1) domain-relevant skills, which include knowledge, talents, and technical skills in the domain; (2) creativity-relevant skills, which include cognitive styles, working styles, and creativity heuristics; and (3) task motivation. According to the model, it is the task motivation component that can be most directly affected by immediate social environments. If an individual performs a task under



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salient extrinsic constraints, the motivation will be primarily extrinsic. If, however, there are no strong constraints in the social environment, the motivation will be primarily intrinsic -- the individual will perceive himself as engaging in the activity primarily for its own sake. A basic premise of the componential model is that intrinsic motivation will be conducive to creativity, whereas extrinsic motivation will be detrimental. To the extent that the presence of other individuals in the social environment leads people to become extrinsically motivated, either through evaluation expectation or through some other mechanism, there should be social inhibition effects on creativity.

There is evidence that evaluation expectation can, by itself, undermine creativity. In a study where undergraduate women made artworks, those who expected expert evaluation of their work exhibited lower levels of creativity than those who expected no evaluation (Amabile, 1979).[1] Moreover, in general, subjects who expected evaluation expressed lower levels of intrinsic interest in the art activity than nonevaluation subjects. These data suggest that evaluation expectation can indeed inhibit creativity, possibly through a decline in task-intrinsic motivation.

Research evidence on the social facilitation (or social inhibition) of creativity is scanty. A few studies have examined the effects of differential administration of creativity tests. In one (Milgram & Milgram, 1976), elementary school children were given a creativity test either alone or in large groups. Nongifted children scored significantly higher under individual administration, but there were no differences between the two conditions for gifted children. Their results recall those of Allport's (1924) social facilitation



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study, in which highly proficient subjects showed no differential effects of mere presence on complex task performance.

Only one study set out to directly examine social facilitation effects on creativity. Matlin and Zajonc (1968) gave subjects a word association test to do either alone or in the presence of an audience. Not only did subjects give their associations more quickly in the presence of an audience, but they also gave more common associations when observed than they did when alone. Thus, there is some support for the proposition that surveillance will undermine creativity. However, this study did not examine the possibility that this social inhibition of novel associations was mediated by evaluation apprehension.

The studies reported here had two primary purposes. The first was to replicate the finding that evaluation expectation can undermine creativity, and the second was to determine what role, if any, the presence of others plays in influencing creative performance. In the first study, evaluation expectation was crossed with coaction; in the second, it was crossed with surveillance by an audience.

## Study 1

This study examined the possible effects of a subtle source of social influence: coaction, in which subjects work individually alongside one another. Within a 2 x 2 factorial design, coaction was crossed with evaluation expectation; this design was used to allow an examination of possible interactive effects of evaluation expectation and coaction. Since this study was also designed to serve as a conceptual replication and extension of earlier findings on the effects of evaluation expectation on artistic creativity (Amabile,



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1979), the present methodology used a verbal creativity task.

## Method

### Subjects

In partial fulfillment of a psychology course requirement, 48 female students at Brandeis University volunteered for a study on handwriting analysis. These subjects were randomly and equally assigned to the four conditions of the experiment, with those in the Coaction conditions participating in groups of four.

### Procedure

Upon their arrival at the laboratory, subjects in the Alone conditions were asked to sit in a single desk-chair that had been placed in a corner of the experimental room. For the Coaction conditions, three additional chairs were placed in the room beforehand. The four chairs formed a circle wherein the Coaction subjects were seated approximately three feet apart from each other.

Subjects in all conditions were told that the main purpose of the experiment was to develop a new technique of handwriting analysis, one for which it was necessary to obtain writing samples with original content. Subjects were told that, to this end, they would each write an "American Haiku" poem according to a detailed set of instructions. Handwriting experts using a new technique would supposedly use the poem as the handwriting sample to be analyzed.

Evaluation expectation was introduced by telling half the subjects, "Later, expert judges will rate your poem, performing a detailed analysis of both the handwriting and the content of the poem. I will mail you a copy of the judges' evaluation of your poem." So that all subjects, even those in the nonevaluation conditions,



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would make an attempt to write a legitimate, coherent poem, they were told that the poems would eventually be donated to a high school teacher for use in his classes. It was made clear that all donated poems would be kept anonymous.

The poetry-writing activity is a verbal-creativity task that has been used successfully in several studies (cf. Amabile, 1982). Subjects are presented with a brief set of instructions outlining the form of the five-line poem to be written. Line 1 is a noun; Line 2 consists of two words, which are adjectives describing the noun; Line 3 consists of three words, which are verb forms describing the noun; Line 4 is a phrase or sentence about the noun, with no length limitation; Line 5 repeats the noun of Line 1. After outlining the haiku structure, the instruction sheet included two examples of American Haiku.

As the technique was used in this and other studies, subjects were given the first line (and, thus, the last line). In effect, then, subjects were asked to write three original lines (with some length restrictions) on a given theme. The first line given to subjects in the present study was "Joy." This technique is particularly useful for social-psychological research on creativity because it presents subjects with an open-ended task that is structured to reduce large individual differences in baseline creativity (see Amabile, 1982).

Subjects were given 20 minutes to write their poems, a time that was sufficient for everyone to finish. A filler task (writing the alphabet with the non-preferred hand) was provided for subjects who finished early. After the 20 minutes had elapsed, subjects were given a questionnaire to complete on their attitudes toward the poetry task



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and their performance on the task. All were then fully debriefed.

## Creativity Assessment

Ten poets served as expert judges to rate the creativity of the poems produced by subjects in this study. All recruited from the English department at Brandeis University, seven of these poets were graduate students and three were undergraduates. All had had at least three years' experience writing poetry, and half were published poets.

Although the judges made their ratings in one group session, each worked independently. Each judge received a booklet in which each of the subjects' poems had been typed exactly as written, along with a copy of the instruction sheet that had been given to subjects. After being allowed to read through all of the poems, judges were asked to rate each poem on a continuous scale of creativity ranging from "low" to "medium" to "high". Each judge rated the poems in a different random order.

The Spearman-Brown reliability of judges' ratings in this study was .87, which is quite satisfactory and compares favorably with reliabilities obtained in other creativity studies.[2]

## Results

Since the interjudge reliability of the creativity ratings was acceptable, they were combined into a mean creativity score for each poem. A 2 x 2 analysis of variance on these creativity scores revealed a strong effect of evaluation, $F$ (1, 47) = 14.14, $p < .0001$. As indicated in Table 1, the nonevaluation groups wrote poems that were rated as more creative than those written by the



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evaluation groups. By contrast, coaction had no effect whatsoever on creativity ($F < 1$), and there was no interaction between evaluation expectation and coaction ($F < 1$).

On the self-rating questionnaire that was administered to subjects following the poetry writing, they were asked to indicate their level of interest in and enjoyment of the activity, as well as their degree of satisfaction with the poem they had written. Only the last item differentiated between the evaluation and the nonevaluation groups, $F\ (1,47) = 4.28$, $p < .044$. Subjects who had expected evaluation of their work reported less satisfaction with their poems than did nonevaluation subjects.

Interestingly, there were two self-rating items that revealed significant effects of coaction. Subjects who worked alone reported both more enjoyment of and more interest in the poetry activity than did subjects working with others ($F\ (1, 47) = 4.89$, $p < .032$ for enjoyment, and $F\ (1, 47) = 3.77$, $p < .058$ for interest). Although these results suggest some undermining of intrinsic interest by the mere presence of others, whatever effect might have been produced here failed to influence the creativity of the poems subjects wrote. There were no interactions between evaluation and coaction on the self-rating items.

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## Study 2

Although Study 1 produced a clear replication of the negative effect of evaluation expectation on creativity, it provided no evidence that the presence of others can undermine creativity. The methodology employed in that study, however, represented a relatively subtle instantiation of social influence variables. If there are social inhibition effects on creative performance, it is likely that surveillance by an audience will have a stronger impact than the mere presence of others working alongside the subject. Moreover, it is likely that performance on an easily observed task will be affected more strongly than performance on a private task such as poetry writing.

Thus, to provide a stronger test of the social facilitation (or social inhibition) of creativity, Study 2 used audience surveillance instead of coaction as the social facilitation variable. Moreover, subjects in Study 2 were given a task where performance can be easily monitored by others: collage-making.

As in Study 1, subjects in Study 2 either did or did not expect expert evaluation of their work. Because evaluation is crossed with audience presence or absence in Study 2, this study provides a direct test of the hypothesis suggested by the results of Henchy and Glass (1968): an evaluative audience will have stronger undermining effects on creativity than will a nonevaluative audience.

### Method

#### Subjects

Subjects were 40 undergraduate women at Brandeis University who volunteered for an experiment on mood induction in fulfillment of a course requirement. They were scheduled for individual sessions.



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Procedure

When subjects arrived at the laboratory, the experimenter informed them that the purpose of the experiment was to determine the effect of various activities on mood. For this particular session, supposedly, an art activity had been chosen: the making of a collage using cardboard, glue, and various pieces of colored paper. The experimenter made it clear that, after completing their collages, subjects would be given a questionnaire assessing their mood. The collage-making task was similar to that used in previous studies (see Amabile, 1979, 1982). All subjects were given identical sets of materials and were told to use the materials in any way they wished to make a collage that conveyed a feeling of "silliness." This silliness theme was used as a means of reducing within-group variability in the types of collages made by subjects, and increasing the likelihood that subjects' collages would show high baseline levels of creativity.

The table at which subjects worked was placed perpendicular to a wall with a one-way mirror.[3] For half of the subjects (No Audience conditions), there was a heavy opaque curtain covering the mirror, and no mention was made of its presence. For the rest of the subjects (Audience conditions), the mirror was uncovered and subjects believed that other people were able to see them from behind the mirror. In the Audience - No Evaluation condition, the experimenter told subjects that, if they heard any noise from the next room, it was simply some other students who were becoming dark-adapted before participating in a vision experiment. In the Audience - Evaluation condition, the experimenter told subjects that four artists would watch them from the next room as they worked and evaluate their performance on the collage



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activity. These artists were, supposedly, senior art majors who had recently completed honors projects in studio art.

Subjects in the No Audience - Evaluation condition were told that four artists (honors art students) waited in a room down the hall to evaluate their collages as soon as they were completed. This expectation of immediate evaluation was used to equate, as much as possible, for the immediate evaluation experienced by subjects in the Audience - Evaluation condition. In both evaluation conditions, subjects were told that they would be given a copy of the expert evaluations of their collages before leaving the laboratory.

Evaluation of the collages was not mentioned to subjects in the No Evaluation conditions. Instead, they were told that the function of the collage-making was merely to provide them with an experience whose mood-induction properties could later be assessed.

Following these instructions, subjects were left alone for 15 minutes to make their collages. When the experimenter returned, she gave subjects a questionnaire which, in addition to some mood items, included several intrinsic-interest items similar to those used in Study 1. The questionnaire also assessed subjects' feelings of being pressured or anxious while working, their concern with possible evaluations of their work, and the degree to which they felt distracted while working.

Before subjects left the laboratory, they were fully debriefed on the purposes of the experiment. It was made clear to subjects that assessments of the collages would be made anonymously, at a later time, and that no one had been observing them as they worked.

In accordance with the creativity assessment technique developed in previous studies (see Amabile, 1982), ten artists (each with at

least three years of experience in studio art) independently rated each of the collages on both creativity and technical goodness (the degree to which the collage was technically well-done). Both sets of ratings showed a high degree of interjudge reliability: .93 for the creativity ratings, and .91 for the technical goodness ratings. Thus, a mean over all judges' ratings was computed for each collage, yielding both a creativity score and a technical goodness score for each.

## Results

As in Study 1, a 2 x 2 analysis of variance of the creativity scores revealed a significant main effect of evaluation, $F$ (1, 36) = 7.22, $p < .011$. Table 2 indicates that the

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nonevaluation groups produced collages that were rated as more creative than those produced by the evaluation groups. In addition, this analysis revealed a nonsignificant trend for a main effect of audience, $F$ (1, 36) = 3.10, $p < .087$. Subjects who believed they were being watched made somewhat less creative collages than those in the No-Audience conditions. There was no interaction between evaluation and audience on creativity, $F < 1$.

The technical quality of subjects' collages was largely unaffected by the independent variables. There was no effect of evaluation, and only a weak trend for a main effect of audience, $F$ (1,36) = 2.86, $p < .099$; subjects who believed they were being watched made collages that were less technically well-done than those

made by No Audience subjects. The interaction of evaluation and audience on technical goodness was nonsignificant.

Responses on the post-experimental questionnaire provide evidence of possible mechanisms for the performance effects observed. Not only did subjects in the evaluation conditions experience greater concern about evaluations of their work than did subjects in the nonevaluation conditions ($F$ (1, 36) = 23.73, $p < .001$), but subjects in the audience conditions experienced greater concern about evaluation than did subjects in the no-audience conditions ($F$ (1, 36) = 13.62, $p < .001$). Interestingly, there was no interaction of evaluation and audience on concern about evaluation; in comparison with the absence of an audience, the presence of an audience produced equivalent increases in feelings of being evaluated whether or not the audience was evaluative.

Evaluation expectation resulted in increased feelings of anxiety in subjects ($F$ (1, 36) = 4.31, $p < .045$), and led subjects to report greater distraction while working on their collages ($F$ (1, 36) = 3.86, $p < .057$). In addition, there was a tendency for subjects in the Audience conditions to report feeling more pressured while working than subjects in the No Audience conditions, $F$ (1, 36) = 3.30, $p < .078$.

Unlike Study 1, this study revealed no significant effects of the independent variables on the intrinsic interest items. However, there is some evidence that intrinsic interest in the collage activity was positively related to creativity in the final product. Subjects who were most concerned with the external evaluation of their collage were likely to produce the least creative collages ($r = -.41$, $p < .001$).

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## Discussion

Employing a verbal creativity task, Study 1 provides a strong conceptual replication of the undermining of artistic creativity by evaluation expectation that was demonstrated in earlier research (Amabile, 1979). Employing an artistic creativity task, Study 2 provides a strong exact roplication of that effect. It appears that, quite reliably, the expectation of expert external evaluation can undermine creativity.

Study 2 also provides an important contrast between creative performance and technical performance in susceptibility to evaluation effects. Although the creativity of the evaluation groups was lower than the creativity of the nonevaluation groups in that study, there was no difference in the technical goodness of the artworks. This finding is partially consistent with theoretical analyses of the difference between creative aspects of performance and other aspects (cf. Amabile, 1979, 1983, in press).

The creative aspects of a task are heuristic -- there is no clear and straightforward approach to successful performance. Some search is required, some exploration of new methods or ideas. By contrast, other aspects of performance, such as technical proficiency, are more algorithmic. Here, little exploration or experimentation is required; the method of appropriate performance is obvious. According to McGraw (1978), heuristic performance should be undermined by extrinsic constraints, but algorithmic performance should be enhanced. Thus, it would be expected that the creativity of collages should suffer under evaluation expectation, but the technical goodness of collages (if truly algorithmic) should improve.

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In Study 2, the differential impact of evaluation expectation on creativity and technical goodness provides partial support for this proposition. Further research on the question is required, though, because there was no enhancement of technical performance in the Evaluation conditions, and because an earlier study (Amabile, 1979) found an undermining of both creativity and technical goodness.

Neither Study 1 nor Study 2 provided strong evidence of the social inhibition of creativity. Indeed, in Study 1 there were no differences whatsoever between the creativity of the subjects who worked alone and the creativity of the subjects who worked in groups. This failure to find differences might, on the face of it, be accounted for by the use of coaction instead of direct observation by others, and the use of a nonobservable task (poetry-writing). Even in Study 2, however, where subjects believed they were under direct surveillance while working and where subjects' performance on the art activity was easily observable, only weak social inhibition effects were found. It might be, of course, that strong inhibition effects would have been found if an audience had actually been present and visible to the subject. But, on the basis of the present evidence, we can only say that the presence of others <u>might</u> inhibit creativity if those others are directly observing the performance.

To the extent that an audience can undermine creativity, a mildly evaluative audience might serve this function just as effectively as a strongly evaluative one. In Study 2, even though an attempt was made to implement an Audience - No Evaluation condition, it appears that subjects did feel that there was some evaluation of their work in that condition. Although they had been told that the potential observers on the other side of the mirror were only other



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students waiting for another experiment, it is likely that they felt any observation of their work would, necessarily, be evaluative. This possibility is supported by results on the questionnaire. There was a clear main effect of audience on felt evaluation, and there was no interaction with evaluation condition.

Thus, it is not possible, on the basis of these results, to determine "pure" effects of audience surveillance on creativity. Since even a minimally evaluative audience does have a negative impact, we cannot rule out the possibility that any audience effects arise from felt evaluation. Ultimately, it may be impossible with humans to implement a truly nonevaluative audience that consists of normal humans. To the extent that people really believe they are being watched, they probably feel evaluated in some degree.

There was some evidence in these studies that the negative effect of evaluation expectation on creativity is mediated by increases in extrinsic motivation. In Study 1, evaluation-group subjects reported feeling less satisfied with their engagement in the poetry activity than did nonevaluation-group subjects. And, in Study 2, there was a significant negative correlation between felt evaluation of the collage and creativity of the final work. These results are not overwhelmingly convincing, however, since there were no such effects on a number of other intrinsic motivation items. The difficulty in interpretation presented by these qualified results is augmented by the relatively weak results of self-report measures obtained in other studies (e.g., Amabile, 1979). Clearly, it will be necessary, in future research, to find more effective methods for identifying the precise mechanism by which extrinsic constraint undermines creativity.



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Future research should also examine other varieties of social influence on creativity. For example, much of the literature on creativity-training programs is concerned with the process of idea-generation in groups. Osborn (1953), in defending the brainstorming procedures he proposed for enhancing creativity, suggested that a social facilitation effect occurs in group settings; individuals stimulate one another's thinking, leading to a larger number of unusual and acceptable ideas. Indeed, most of the literature on creativity training implicitly or explicitly suggests that work in groups is more conducive to creative productivity than solitary work. In addition to studying the impact of passive observers, then, researchers interested in the direct applicability of their work to real-world arenas should focus attention on the impact of active co-workers on individual creativity.

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## Footnotes

1. This effect held for those conditions where the art task remained heuristic. If the task was rendered algorithmic by providing subjects with specific instructions on how to make a creative collage, evaluation-group subjects produced work judged higher in "creativity." Thus, the undermining effect of evaluation expectation holds for tasks that are truly heuristic -- tasks that, by definition, do indeed call for creativity.

2. This creativity assessment technique is described in more detail by Amabile (1982, 1983).

3. Because the work table was perpendicular to the mirror, the mirror was to the subject's side as she worked, rather than directly in front of her. This placement was used to avoid objective self-awareness effects that might confound any effects of audience presence (Wicklund, 1975).

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Table 1

Creativity of Poems

Study 1

| | Alone | Coaction |
|---|---|---|
| No Evaluation | 22.48 | 23.76 |
| Evaluation | 17.29 | 16.20 |

Note. These are means on a 40-point scale.

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Table 2

Creativity of Collages

Study 2

| | No Audience | Audience |
|---|---|---|
| No Evaluation | 24.28 | 20.62 |
| Evaluation | 19.18 | 17.36 |

Note. These are means on a 40-point scale.

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